

I claim:

1 1. A circuit arrangement for sequential classification of a plurality of controllable
2 components, to each of which a calibration resistor is assigned for which the resistance
3 value classifies the component with regard to at least one characteristic, comprising
4 switching means via which each calibration resistor can be switched individually into
5 a calibration network which is suitable for creation of an electrical calibration voltage
6 dependent on the value of the calibration resistor, wherein the calibration network
7 comprises a constant current source and a reference resistor connected in parallel to
8 the constant current source, wherein the output voltage can be tapped and wherein the
9 switching means can switch each calibration resistor in parallel to the reference
10 resistor.

1 2. The circuit arrangement according to Claim 1, wherein for limiting the
2 maximum output voltage of the constant current source a limiter diode as part of the
3 calibration network is arranged between this and a reference voltage source.

1 3. The circuit arrangement according to Claim 2, wherein the reference voltage is
2 a 5 V VCC supply voltage of the calibration network.

1 4. The circuit arrangement according to Claim 1, wherein a decoupling diode is
2 assigned to each calibration resistor via which it can be connected to the calibration
3 network.

1 5. The circuit arrangement according to Claim 4, wherein to compensate for the
2 voltage drop at the decoupling diode assigned to each calibration resistor a common
3 diode in series to the reference resistor is arranged as part of the calibration network.

1 6. The circuit arrangement according to Claim 1, wherein all calibration
2 resistances can be sent sequentially with a measurement current from the same
3 constant current source.

1 7. The circuit arrangement according to Claim 1, wherein the constant current
2 source is an operational amplifier connected as a current source or includes a transistor
3 connected as a current source.

1 8. The circuit arrangement according to Claim 1, wherein for classification of at
2 least one characteristic of the controllable components the latter are provided with
3 calibration resistors with different , and within the context of conventional
4 manufacturing tolerances, fixed resistance values.

1 9. The circuit arrangement according to Claim 1, wherein the resistance values of
2 the calibration resistors and the components of the calibration network are matched to
3 each other in such a way that the calibration voltages resulting from the calibration of
4 two consecutive resistance values in the series of resistance values exhibit about the
5 same difference for all resistance values.

1 10. The circuit arrangement according to Claim 1, wherein the resistance values of
2 the calibration resistors and the components of the calibration network are matched to
3 each other in such a way that the calibration voltages resulting from the calibration of
4 two consecutive resistance values in the series of resistance values exhibit about the
5 same difference for all resistance values- relative to one of the two calibration
6 voltages.

1 11. The circuit arrangement according to Claim 1, wherein the calibration resistors
2 are selected from the group of resistors having values of around 2.0 k Ω , 3.6 k Ω , 5.6
3 k Ω , 8.6 k Ω , 11.0 k Ω , 15.0 k Ω , 20.0 k Ω , 27.0 k Ω and 39.0 k Ω .

1 12. The circuit arrangement according to Claim 1, wherein the constant current
2 source delivers a current of -0.4 mA.

1 13. The circuit arrangement according to Claim 1, wherein the components are a
2 plurality of injection valves of a high-pressure injection system of a diesel engine.

1 14. A method for sequential classification of a plurality of controllable
2 components, comprising the steps of:

3 - assigning to each component a calibration resistor for which the resistance
4 value classifies the component in relation to at least one characteristic,

5 - sequential switching of each individual calibration resistor into a calibration
6 network,

7 - applying an electric current from a constant current source to the calibration
8 resistance,

9 - tapping off an electrical calibration voltage dependent on the value of the
10 calibration resistance at the output of the calibration network via a reference resistor
11 connected in parallel to the constant current source.

1 15. The method according to Claim 14, wherein the calibration voltage is injected
2 into an input of a computation unit.

1 16. The method according to Claim 15, wherein the computation unit uses the
2 injected calibration voltages to calculate control parameters that are suitable for each
3 controllable component and/or reads these values in from a memory.

1 17. The method according to Claim 14, wherein the method is executed
2 immediately before the controllable component is put into operation.

- 1 18. A method for sequential classification of a plurality of injection valves of a
2 high-pressure injection system of a diesel engine, comprising the steps of:
- 3 - assigning to each injection valve a calibration resistor for which the
4 resistance value classifies the injection valve with regard to at least one characteristic,
 - 5 - switching each calibration resistor individually into a calibration network
6 which is suitable for creation of an electrical calibration voltage dependent on the
7 value of the calibration resistor,
 - 8 - tapping the output voltage of the calibration network.
- 1 19. The method according to claim 18, wherein the calibration network comprises
2 a constant current source and a reference resistor connected in parallel to the constant
3 current source.
- 1 20. The method according to claim 19, further comprising the step of switching the
2 respective calibration resistor in parallel to the reference resistor.